

Water Damage Prevention



Community Development

Code Compliance
Property Maintenance
Public Education Series



Maintaining Safe Homes for Owners and Renters:



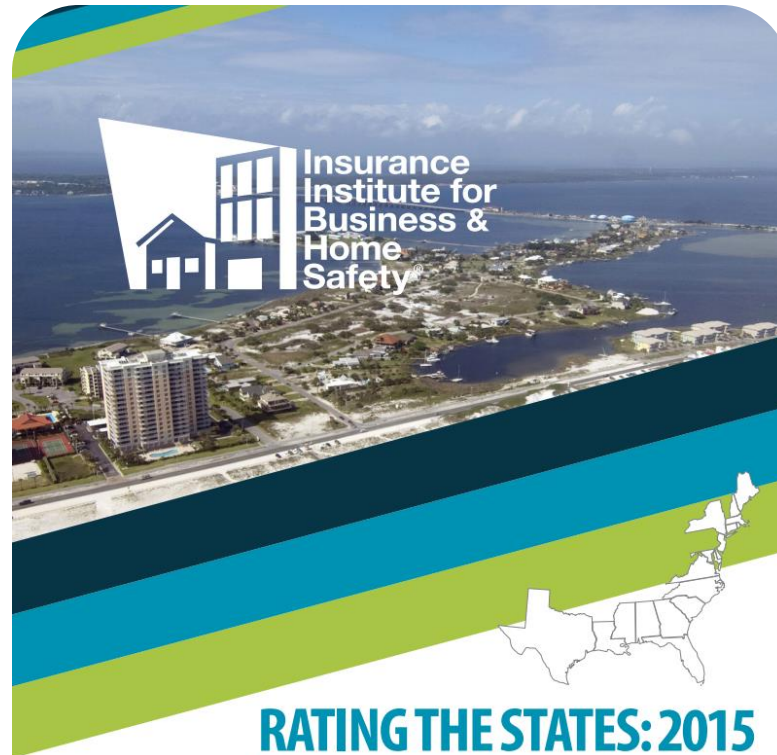
Water Damage Prevention Education

Workshop Presenter

Dana L. Horne, EdS., ICC/AACE
Rental Program Administrator
Codes Compliance Inspector

Website: www.lynchburgva.gov/rental-program
Email: dana.horne@lynchburgva.gov
Phone: 434-455-3922

Virginia Rates Highest for Home Safety



*An Assessment of Residential Building Code and Enforcement Systems
for Life Safety and Property Protection in Hurricane-Prone Regions*

Click picture or
copy and paste URL
address in your
browser

ATLANTIC AND GULF COAST STATES
MARCH 2015

MARCH 2012

ATLANTIC AND GULF COAST STATES

<http://disastersafety.org/wp-content/uploads/2015/07/rating-the-states-2015-public.pdf>

2015 and 2012 STATE SCORES

State	2015 New Score	2012 Original Report Score
VIRGINIA	95	95
FLORIDA	94	95
SOUTH CAROLINA	92	84
NEW JERSEY	89	93
CONNECTICUT	88	81
RHODE ISLAND	87	78
NORTH CAROLINA	84	81
LOUISIANA	82	73
MASSACHUSETTS	79	87
MARYLAND	78	73
GEORGIA	69	66
NEW YORK	56	60
MAINE	55	64
NEW HAMPSHIRE	48	49
TEXAS	36	18
MISSISSIPPI	28	4
ALABAMA	26	18
DELAWARE	17	17

Healthy Housing and Code Enforcement

Healthy Housing Laws that Work

Creating Effective Implementation & Enforcement Clauses



Click picture
or copy and
paste URL
address in
your browser
to open full
document

http://changelabsolutions.org/sites/default/files/Healthy_Housing_Laws_Enforcement_FINAL_20140423.pdf

Owner Education



Becoming a Landlord

Rewards, Risks, and Responsibilities

Click picture
or copy and
paste URL
address in
your browser
to open full
document

<https://www.fanniemae.com/content/tool/landlord-guidance.pdf>

http://issuu.com/d2yadah/docs/becoming_a_landlord-_fanniemae/1

Tenant Education



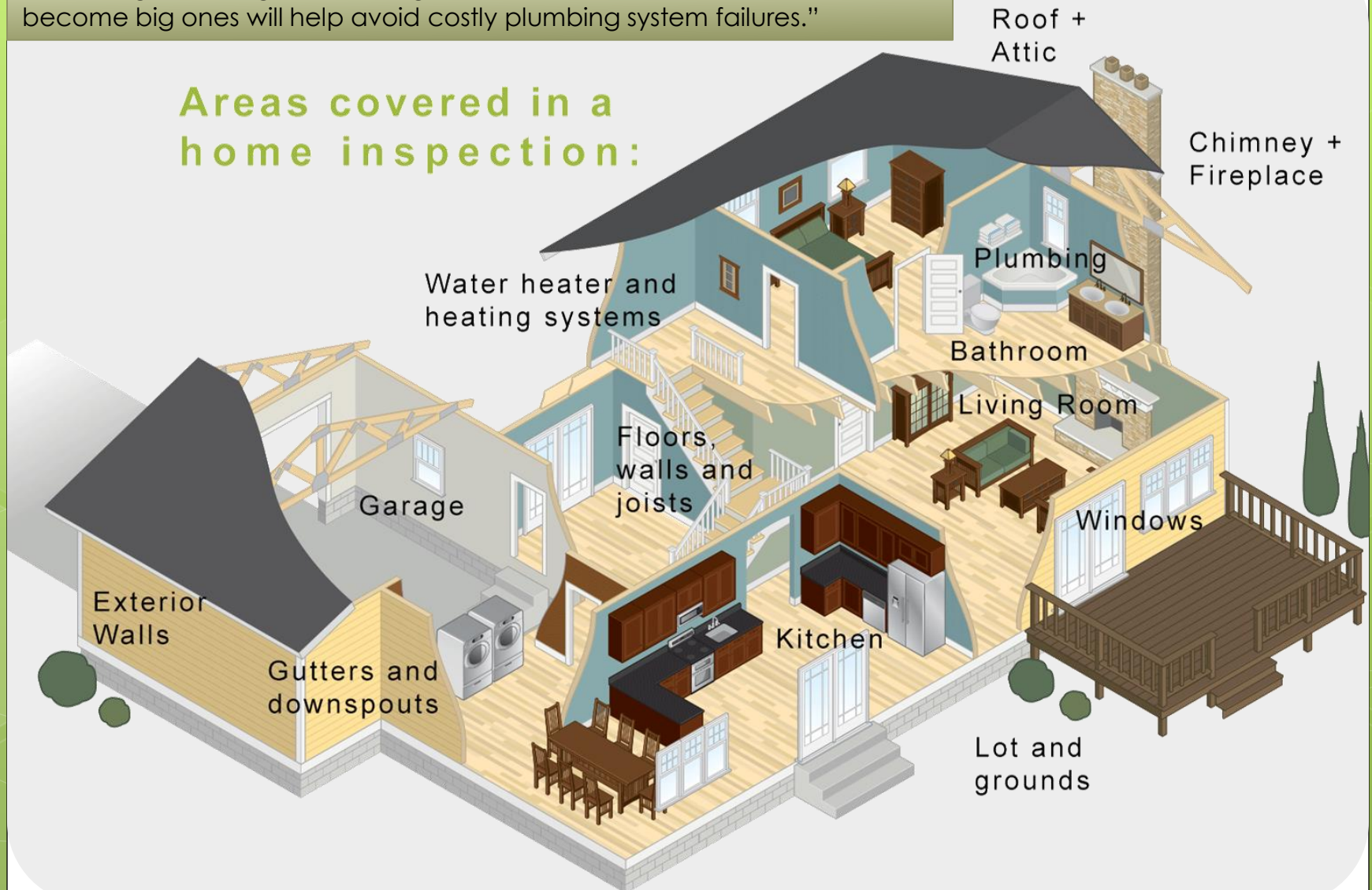
Click picture
or copy and
paste URL
address in
your browser
to open full
document

<http://www.valegalaid.org/files/E095B726-FCD8-81C1-17DC-A16C7ED73FFF/attachments/A547C34B-D98B-49AC-ACCA-336AA3EB547F/tenants-rights.pdf>

Water can travel through walls and ceilings causing permanent structural damage to dwellings and erode its strength

"Water damage in a kitchen or bathroom can lead to expensive repairs. Inspecting plumbing and making any necessary repairs before small leaks become big ones will help avoid costly plumbing system failures."

Areas covered in a home inspection:



Find and Fix the Water Source

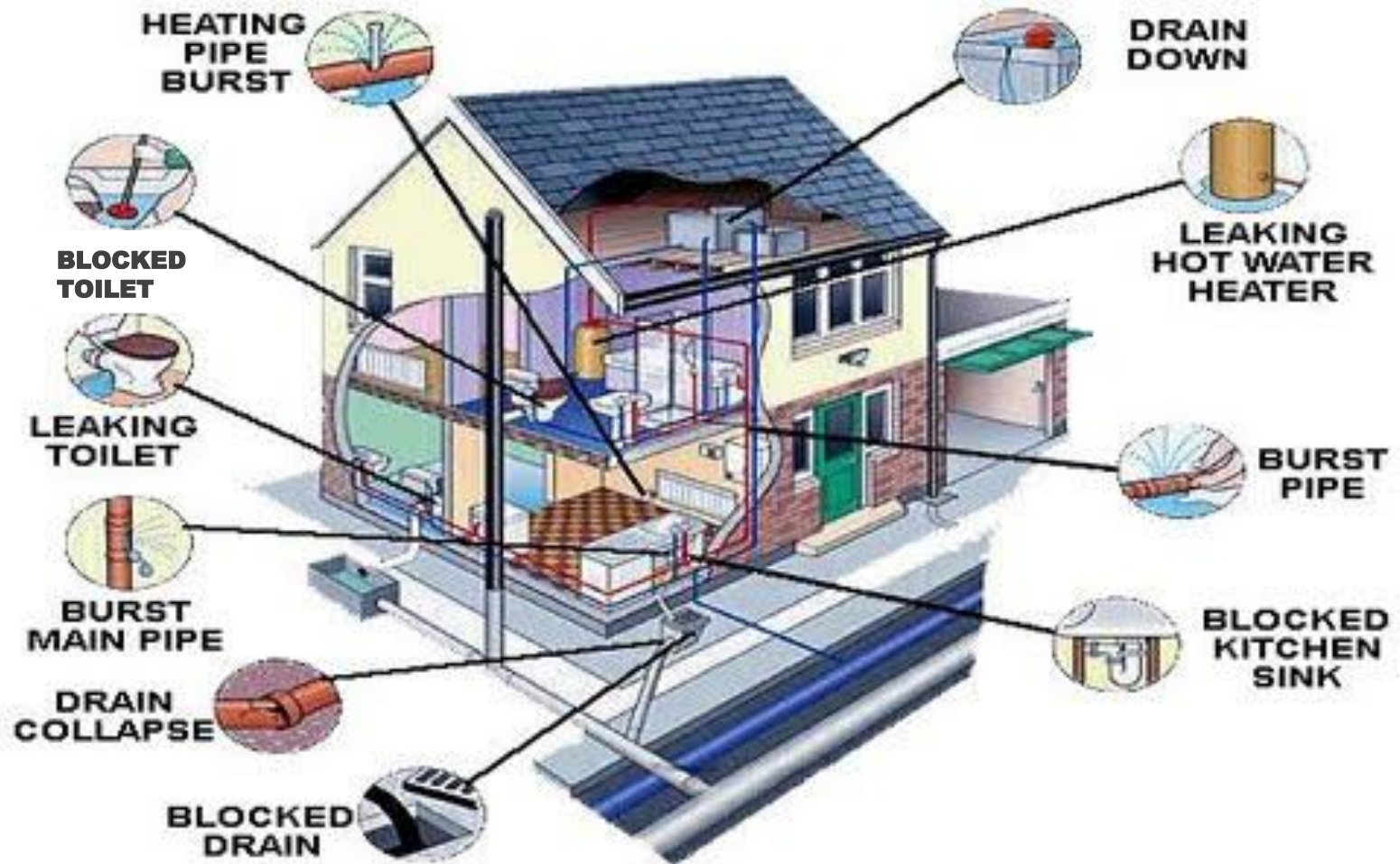
INTERIOR

- Water Heaters
- Pipes Under Sinks
- Leaky Faucets
- Washing Machines
- Dishwasher Leakage
- Icemakers
- Toilets
- Urine
- Showers
- Sump Pumps

EXTERIOR

- Leaking Roof
- Gutters
- Moisture Behind Walls
- Windows And Sills
- Window Air Conditioners
- Fascia Boards
- Foundation Cracks

Common Sources & Causes of Interior Water Infiltration



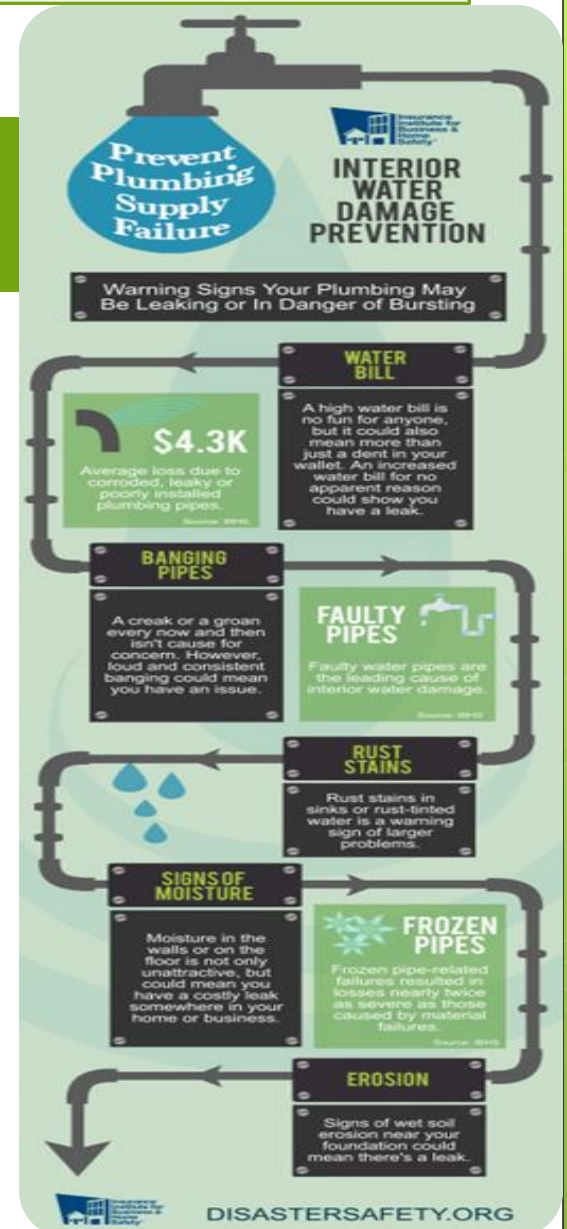
Signs of Water and Moisture Damage

- Rotting of wood
- Growths
- Rusting of steel
- De-laminating of materials such as plywood
- Odors
- Fuzzy, discolored growths
- Stains and discolorations
- Blistering or peeling wall surfaces
- Damaged walls and ceilings
- Damaged floors



Inadequate ventilation can lead to unwanted moisture causing:

- Musty odors
- Rusty stains around light or plumbing fixtures
- Damp/sticky floors
- Mold and mildew growth along ceilings, walls and baseboard edges
- Condensation on walls, ceilings and windows
- Pest or vermin infestation



Water damage can cost
thousands of dollars in repairs.

Roof Water Intrusion by Wind Driven Rains and Roof Simulator

Click orange link letters or copy
and paste URL address in your
browser to watch video



<https://vimeo.com/17299430>
<https://vimeo.com/17299430>

Roof Water Intrusion by Wind Driven Rains

Click orange link letters or copy
and paste URL address in your
browser to watch video



<http://disastersafety.org/ibhs-risks-thunderstorms/wind-driven-rain-demo/>

<https://vimeo.com/28068692>

Click orange link letters or copy and paste URL address in your browser to watch video

Water damage can cost thousands of dollars in repairs.

Exterior Inspection

Roof

- Missing shingles, erosion, deterioration

Click picture or copy and paste URL address in your browser to watch video



<https://www.youtube.com/watch?v=PWGLD4p3SWU>

Walls, Fascia and Soffits

- Holes, cracks, deterioration

Flashings

- Not secured or missing

Drains

- Clogged

Gutters and Downspouts

- Missing, improper drainage, not secured, holes, cracks

Roof-mounted Equipment

- Antennas or satellite dishes

Outside Walls, Doors and Windows

- Peeling paint, holes, rot, mold, pest

Gaps around Windows and Doors

- Condensation, deterioration, peeling paint
- Grade of Property** - Soil should be graded from the foundation so that water flows away from the house during heavy rain or snow.



<https://vimeo.com/127529643>

Click orange link letters
or copy and paste URL
address in your browser
to watch video

Interior Plumbing and Water Appliances

***Plumbing Fixtures, Pipes, Drains, Sinks,
Washing Machines & Water Heaters***

- Know where the main water shut-offs in your home are located
- Check the hoses for cracks, kinks, or blisters that are commonly found near the hose connection
- Install reinforced braided stainless steel hoses
- Locate and test the water shut-off valve
- Ensure connections are secure
- Inspect the for dripping or signs of rust and corrosion
- Inspect the plumbing water supply lines every six months

Prevent Water Damage from Toilets

<http://disastersafety.org/ibhs-risks-plumbing/toilet-maintenance/>

- Inspect the flushing mechanism inside the toilet every six months
- After flushing a toilet remain in or near the bathroom to ensure the tank refills properly and does not overflow and/or continue running



Click blue boxes, pictures or copy and paste URL address in your browser to open full document



Prevent Water Damage from Washing Machines

<http://disastersafety.org/ibhs-risks-plumbing/water-damage-risks-from-a-washing-machine-leaking/>

- Replace rubber hoses with reinforced braided stainless steel hoses
- Do not operate when home is unoccupied



Prevent Water Damage from Plumbing Systems and Drains

<http://disastersafety.org/ibhs-risks-plumbing/preventing-water-damage/>



Showers and Tubs

- Do not leave the room when filling the tub or running the shower

Refrigerators

- Leave 3-4 inch space between the back of the refrigerator and the wall to prevent the hose from crimping

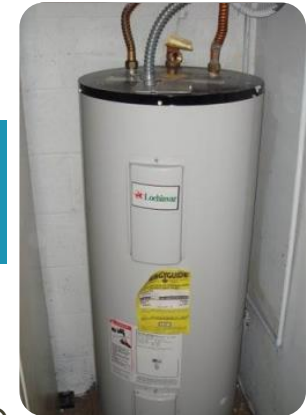
Click blue boxes, pictures or copy and paste URL address in your browser to open full document



Prevent Water Damage from Water Heaters

<http://disastersafety.org/ibhs-risks-plumbing/water-heater-maintenance/>

- Get an inspection annually.** Don't forget to have a plumbing professional inspect your water heater's shut-off valve and all piping annually. Signs of broken valves and loose or wet joints and rust are a signal that more severe damage is coming.



Helpful Tips Cont.

- Install water shut-off valves on water lines under sinks, toilets, tubs/showers, refrigerators with ice makers, washing machines, hot water tanks, boilers and outside faucets
- Respond quickly to small leaks around sinks, toilets tubs/showers, refrigerators with ice makers, washing machines, hot water tanks, boilers and outside faucets before they become major problems
- Insulate pipes that are located in basements, attics and crawl spaces to avoid freezing
- Consider installing a floor drain when you have your washing machine, hot water tank or boiler located on the upper floors of the dwelling
- Review water bill carefully; a substantial increase could indicate a leak

Ways to Eliminate Excess Moisture

- Use exhaust fans in the bathroom when showering
- Vent dryers to the outside
- Keep inside air circulating with vents and fans to avoid condensation
- Remove excessive clutter of clothes, bags, rubbish, garbage, piles or items from interior and exterior
- Eliminate urine and fecal accidents
- Exterminate pest and vermin



Flood Property Protection

Making Your Building More Flood Resilient



\$8.3 Billion

The average annual amount of damages from flooding in the U.S.

Source: National Oceanic and Atmospheric Administration

Flooding can occur anywhere, often with little or no warning. The following guidance outlines proactive steps you can take to reduce the risk of a flood severely damaging your home or business.

Protect wells from flood contamination by having a licensed contractor inspect and suggest safety improvements for your well.

Direct water away from your building by making sure your yard slopes away from your home.

Have a licensed contractor move HVAC equipment to an upper floor, or build a flood-proof wall around the equipment.

Make sure your sump pump is operational and battery is fully charged.

Hire a licensed electrician to raise switches, sockets, circuit breakers and wiring at least 12 inches above expected flood levels.

Anchor fuel tanks.

Have a licensed plumber install an interior or exterior sewer backflow valve.

Water Damage from Flood and Heavy Rains

Flooding



HGTV <http://videos.hgtv.com/video/hurricane-water-intrusion-0167738>

Click picture or copy and paste URL address in your browser to watch video

<http://disastersafety.org/ibhs-risk-flood/reduce-flood-damage-to-homes/>

Flood Risk Scenarios Interactive

Click picture or copy and paste URL address in your browser to watch video

Flood Risk Scenarios

Which scenario applies to you?

SNOW MELT FLASH FLOOD NEW DEVELOPMENT DAMS/LEVEES TROPICAL STORM

Winter in the Heartland

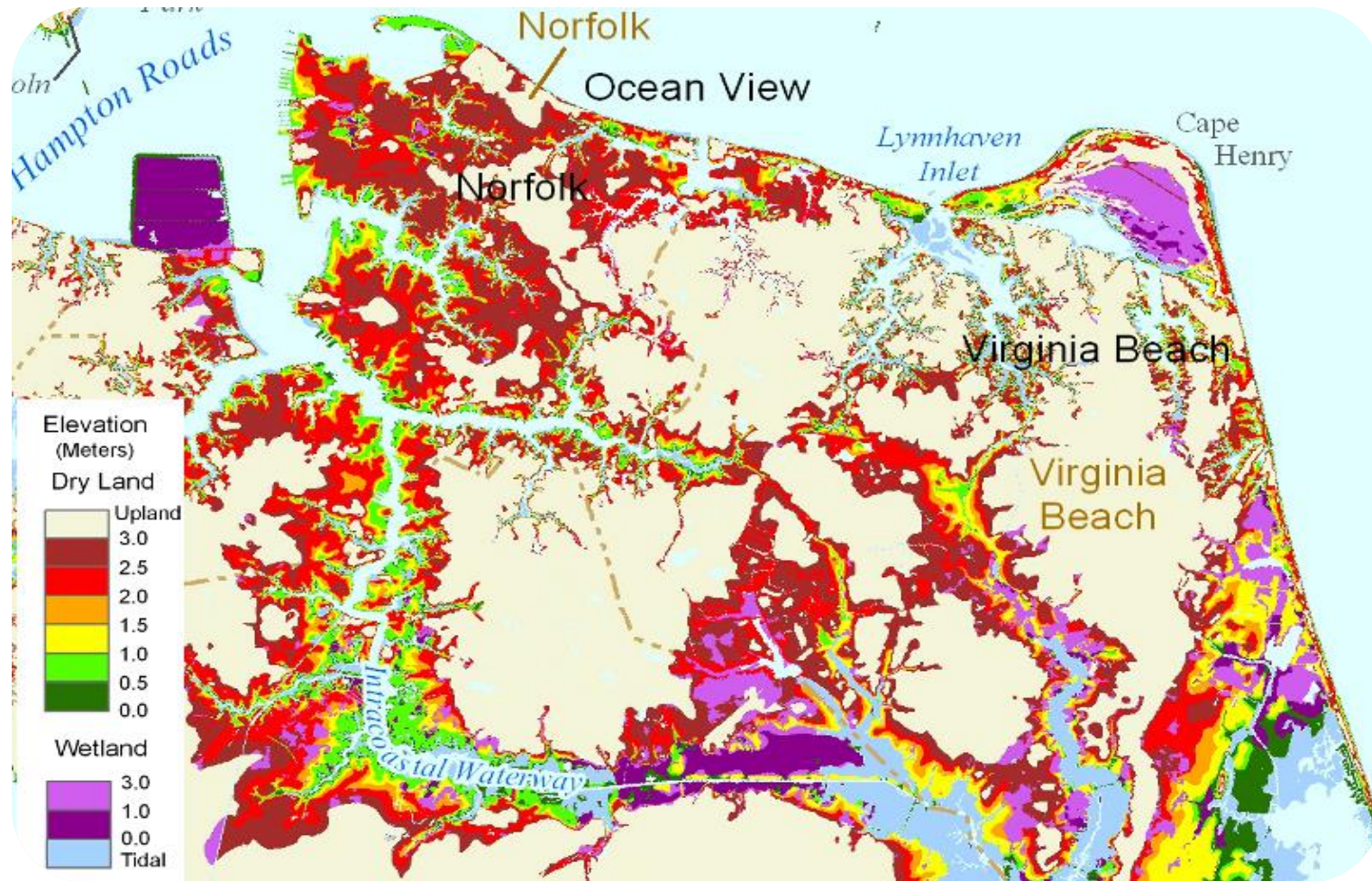


2 His property is exposed to heavy snowfall that accumulates over the winter months.

https://www.floodsmart.gov/floodsmart/flash/main_experience.swf

Flooding Map

Hurricane Flooding and Tidal Surge Map



<http://www.virginiaplaces.org/climate/norfolkdown.html>

from the Hampton Roads Emergency Management Committee

Mold & Moisture Prevention

Most Reported Water Indicator

Mold & Moisture in the Home

Strategies for Local & State Government



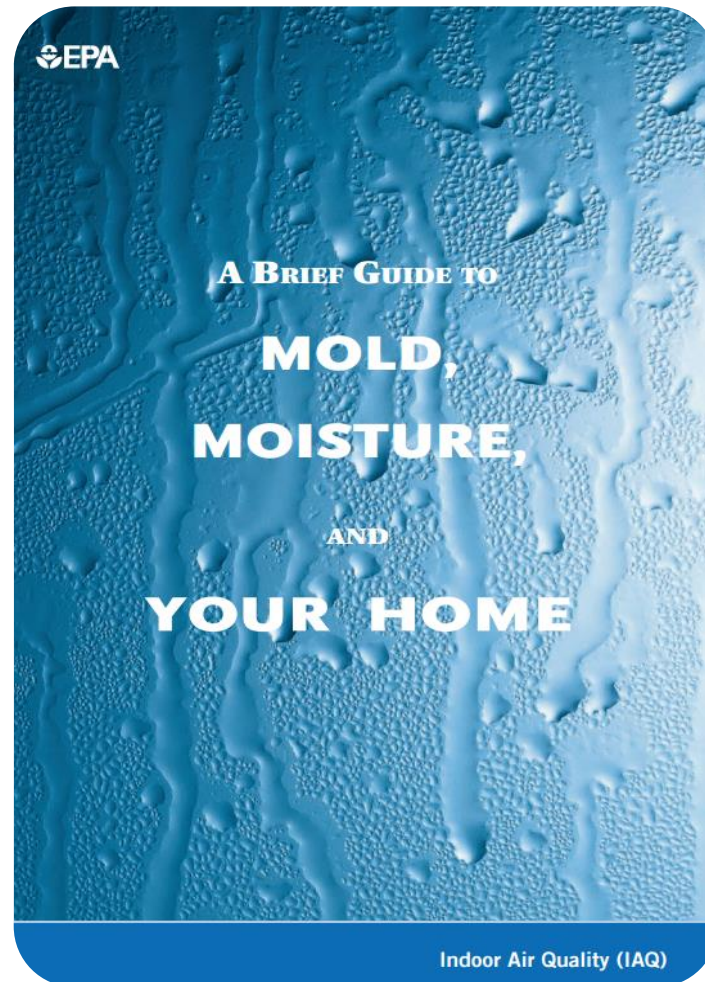
Virginia state law requires landlords and tenants to maintain the premises to prevent the accumulation of moisture and the growth of mold and requires landlords to respond promptly to notifications by tenants of mold or moisture accumulation. If a tenant elects to take possession of a unit notwithstanding presence of mold, the landlord must promptly remediate the condition. Where a mold condition materially affects the health or safety of a tenant, the landlord may require the tenant to temporarily vacate the premises for up to 30 days while the landlord undertakes mold remediation. In such cases, the landlord is required to pay the tenant's relocation costs.

<http://www.dhcd.virginia.gov/images/Housing/Landlord-Tenant-Handbook.pdf>

http://www.changelabsolutions.org/sites/default/files/Mold_&_Moisture_in_the_Home-FINAL-20140421.pdf

Housing Codes, Nuisance, & Enforcement Explicitly Addressing Mold in Housing Codes Construction, property maintenance, and housing codes often address mold indirectly by establishing requirements for building ventilation, drainage and weatherproofing elements, and by requiring interior surfaces be kept in good, clean condition.¹¹ However, in the absence of specific statutory language establishing the presence of mold as a code violation, code enforcement officers may not be empowered to address mold problems. This impediment can be overcome by explicitly identifying the presence of visible mold or mold odor as a violation of state or local codes.

EPA on Mold & Moisture



Click blue picture or
copy and paste URL
address in your
browser to open full
document

<http://www.epa.gov/mold/pdfs/moldguide.pdf>

Clean It Up



Clutter Image Rating: Bedroom

Please select the photo that most accurately reflects the amount of clutter in your room.



1



2



3



4



5



6



7



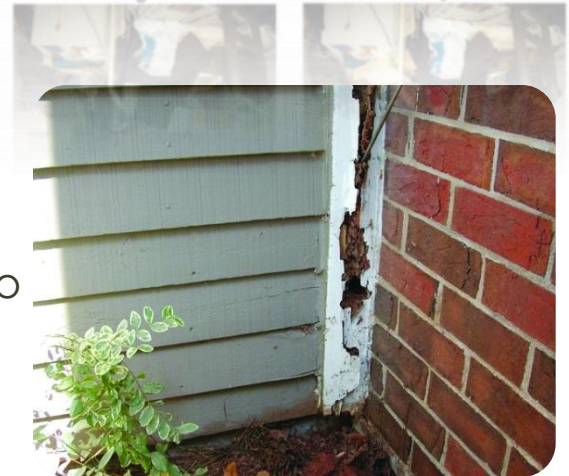
8



9

<http://issuu.com/d2yadah/docs/hoarding OCD scale image with color>

- Clutter inhibits: healthy environmental air quality, proper ventilation, traps moisture, which provides a dark warm environment for organic growths/mold
- Pests – ants, roaches, termites, mice, etc. are able to infiltrate and nest where surfaces have been weakened and deteriorated from moisture and damage



Pests



<https://www.bugs.com/blog/top-5-ways-to-rid-your-home-of-roaches/>

- Cockroaches are attracted to warm and dry places that they can burrow into. Piles of newspapers, mail or magazines are a perfect roach hut. Clutter also provides a desirable shelter and, depending upon where it is located, a source of food. Scrub your house from top to bottom. Get rid of the piles of clutter. Put everything away. Invest in some air-tight sealable containers for food and cooking ingredients. It won't get rid of them completely but it will discourage new roaches from invading when they find that there are very few places to hide.
- **Fabric Softener** Cockroaches do not like fabric softener. **Catnip** is also a natural roach repellant. Sprinkle it around under your sink and in your cabinets and close to your doors.



Termites

Lynchburg Property Maintenance

<http://www.lynchburgva.gov/property-maintenance>

Lynchburg Rental Program

<http://www.lynchburgva.gov/rental-program>

The Benefits of Statewide Building Codes

https://disastersafety.org/wp-content/uploads/Building_Code_insights_2015.pdf

Toilet Failure Risks

<http://disastersafety.org/ibhs-risks-plumbing/toilet-maintenance>

Washing Machine Failure Risks

<http://disastersafety.org/ibhs-risks-plumbing/water-damage-risks-from-a-washing-machine-leaking/>

Water Heater Failure Risks

<http://disastersafety.org/ibhs-risks-plumbing/water-heater-maintenance>

Plumbing Supply System Failure Risks

<http://disastersafety.org/ibhs-risks-plumbing/preventing-water-damage/>

Exterior Window Water Damage YouTube

<https://www.youtube.com/watch?v=PWGLD4p3SWU>

Exterior Window Water Damage YouTube #2

<https://www.youtube.com/watch?v=t5ZC3-dxNo>

Moisture and Mold link 1

<http://www.epa.gov/mold/pdfs/moldguide.pdf>

Moisture and Mold link 2

[http://changelabsolutions.org/sites/default/files/Mold %26 Moisture in the Home-FINAL-20140421.pdf](http://changelabsolutions.org/sites/default/files/Mold%26Moisture%20in%20the%20Home-FINAL-20140421.pdf)

Healthy Housing

[http://changelabsolutions.org/sites/default/files/Healthy Housing Laws Enforcement FINAL 20140423.pdf](http://changelabsolutions.org/sites/default/files/Healthy%20Housing%20Laws%20Enforcement-FINAL-20140423.pdf)

The Benefits of Statewide Building Codes

[https://disastersafety.org/wp-content/uploads/Building Code insights 2015.pdf](https://disastersafety.org/wp-content/uploads/Building_Code_insights_2015.pdf)

The Value and Impact of Building Codes

<http://disastersafety.org/wp-content/uploads/The-Value-and-Impact-of-Building-Codes-by-Ellen-Vaughn-Jim-Turner.pdf>

RATING THE STATES: 2015 ATLANTIC AND GULF COAST STATES MARCH 2015 An Assessment of Residential Building Code and Enforcement Systems for Life Safety and Property Protection in Hurricane-Prone Regions

<http://disastersafety.org/wp-content/uploads/2015/07/rating-the-states-2015-public.pdf>

Moisture and Mold Other Information

http://inspectapedia.com/mold/Cosmetic_Black_Mold.php

10 Mold Prevention Tips for Your Home

<http://www.houselogic.com/home-advice/air-quality/how-to-prevent-mold-damage/>

Clutter Hoarding Scale

<http://issuu.com/d2yadah/docs/hoarding OCD scale image with color>

Bed Bugs: Virginia Legal Aid FAQ <http://www.valegalaid.org/resource/bed-bugs-in-rental-housing?ref=F0eWI>

Virginia Residential Landlord and Tenant Act 2014

<http://www.dhcd.virginia.gov/images/Housing/Landload-Tenant-Handbook.pdf>

Third Party - Outside Link Disclaimer

Links to external, or third party websites, are provided solely for visitors' convenience. Links taken to other sites are done so at your own risk and the City of Lynchburg accepts no liability for any linked sites or their content. Any link from a City website to an external website does not imply an endorsement of content, viewpoint, policies, products, or services of that website. The City of Lynchburg does not give any representation regarding the quality, safety, suitability, or reliability of any external websites or any of the content or materials contained in them. It is important for users to take necessary precautions, especially to ensure appropriate safety from viruses, worms, Trojan horses, and other potentially destructive items. Once you link to a non-City website, you are subject to the terms and conditions of that website, including, but not limited to, its privacy policy... **See more at:**

<http://www.lynchburgva.gov/terms-use>

Notes



Community Development Department of Inspections

Code Compliance Property Maintenance
Public Education Series
Prepared by

Dana L. Horne, EdS., ICC/AACE
Rental Program Administrator
Codes Compliance Inspector

900 Church Street 2nd Floor
Inspection Division
Lynchburg, VA 24504

www.lynchburgva.gov
434-455-3910

www.lynchburgva.gov/rental-program
434-455-3922